Reduction of shoulder dislocation

Are communication and adequate relaxation more important than technique?

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Various techniques have been proposed to reduce anterior shoulder dislocation in the emergency department (ED). The superiority of one approach over another has yet to be established.

The key role of good muscle relaxation in successful reduction by any method has been recognized in the literature,[1,2] but instructions on how to best achieve it are lacking. Usually, a pharmacologic solution is proposed,[3] which most commonly involves moderate to deep intravenous sedation. Taking a patient close to a level of deep sedation will achieve good muscle relaxation and expedite reduction. It carries the risk of hypoventilation and loss of patency of the airway. One must be confident in managing these complications. Intra-articular injection of a local anesthetic is a less risky alternative, albeit one that patients find less appealing.[4,5]

Selected literature on treatment

In the past, ED clinicians were less proficient in managing deep sedation and airway complications. Most studies of shoulder dislocation techniques relied on light or moderate levels of sedation-analgesia. The proposed methods and the presented data in several published studies point to the role of adequate muscular relaxation and physician-patient interaction, and sometimes patient participation, in the success of various reduction techniques. Unfortunately, many authors fail to address these issues in their discussions and limit their comments to the technical aspects of the approach.

Only 2 (unfortunately, methodologically poor) quantitative studies have been conducted to compare reduction techniques. Comparing the Kocher and Milch techniques, Beattie and colleagues[6] found no difference in the rate of success (72% vs 70%), although this was significantly related to patient age ($P<.03$) and muscle mass ($P<.01$). The other comparison study was retrospective and subject to selection bias. It compared the new Oxford Chair Technique with traditional methods of reduction, a poorly defined eclectic group of common techniques.[7] Use of the new technique reduced time spent in the ED and the use of sedation or opioids. Patients were informed of the procedure, given a mixture containing nitrous oxide, and "put at ease with confident reassurance."[7] However, the method had only a 62% success rate.

The other published studies on reduction techniques did not include comparison groups. McNamara[8] describes a seated position technique. He uses active traction and has an assistant perform rotation of the scapula. He reports a 79% success rate overall. His methodology explains the technical aspects of the method but makes no mention of the physician-patient interaction during the procedure. Stimson's hanging arm technique[9-11] relies on passive weight and muscle fatigue in a prone position to overcome spasm. There is no physician-applied traction and no active patient involvement to hasten muscle relaxation. Ceroni and colleagues[12] describe a self-reduction technique (Boss-Holzach-Matter) in which patients apply active traction themselves. In a series of 5 consecutive successful cases, Cunningham[13] describes a no-traction, drug-free technique that achieves reduction using a different positioning in which the patient's elbow is flexed while the hand rests on the arm of the physician, who kneels on the floor and massages the shoulder area. The physician secures the patient's cooperation and interacts using verbal reassurance and frequent feedback. The Spaso technique[14] uses premedication, vertical traction, and the supine patient's own weight for countertraction. The interesting—and possibly most useful—feature of this method is that the physician is placed in a position of weakness by having to exert traction against gravity. This precludes the application of considerable force for any extended period.

In a study by Canales Cortés et al, the Milch technique was successful 83% of the time.[15] Success was significantly related to the degree of muscular contraction ($P=.002$). The authors state the following: "The patients' collaboration was fundamental to the success of the manoeuvre."[15] However, this finding did not achieve statistical significance. O'Connor et al claimed an impressive 100% success rate on the first attempt with the Milch technique with no analgesia on 75 consecutive patients.[16] The 2 co-authors were called upon to perform all the reductions around the clock. Although one might attribute their success to experience, on reading their protocol, one realizes that attention to physician-patient interaction, continuous feedback, and focus on patient comfort and participation were optimized. Unfortunately,

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the authors were too modest in their discussion and failed to identify the probable reason for their incredible success: the quality of their interaction, which resulted in superior muscular relaxation.

Communication and adequate relaxation

The variety of methods that have been used for reduction of anterior shoulder dislocation suggests that the technique itself is not the critical factor that determines success, and neither are traction or muscle relaxants. Indeed, 2 myths must be debunked. The first is that substantial traction is required for reduction. When one considers muscle physiology, stretching results in activation of muscle spindles and causes reflex contraction. One has only to think of the deep tendon reflexes we elicit in our patients to be convinced that traction, or at least substantial rapidly increasing traction, can only be counterproductive. The second myth is that benzodiazepines have good muscle-relaxing properties. This is only true if one induces an altered state of consciousness. The level of muscle relaxation attainable by nonpharmacologic means has been greatly underestimated. In my experience and that of others,[17] nonpharmacologic means are superior to pharmacologic intervention except in dosages associated with deep sedation. Patients possess a level of resourcefulness that is largely unexplored and unused. The fact that those who experience recurrent dislocations have higher baseline pain scores than those experiencing dislocation for the first time[5] points to the role of cognitive factors such as apprehension in pain perception. Good communication and a simple relaxation routine might achieve superior muscle relaxation without side effects. The clinicians in the studies cited above had their own relaxation routines that they used to maximize patient cooperation and participation. Rather than considering the patient as a passive individual to whom a reduction technique is applied, it might be time to consider how to maximize his or her participation to improve relaxation and hasten reduction with the fewest side effects. This should be compared with a control group in a study using the same reduction technique.

However, there is one problem. In this paradigm, the locus of control in the physician-patient relationship shifts toward the patient. A study in primary care has shown that patients strongly favour partnership with their physicians in a patient-centred approach.[18] Patients are ready for a paradigm shift. Are we?

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Competing interests
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